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Internet capabilities ride on wings of "Pegasus" project

by Fran Crumb, Information Directorate

ROME, N.Y. — The challenge of expanding today's Internet to meet the technological and consumer demands of the 21st century is the focus of a $5,764,000 grant from the Air Force Research Laboratory Information Directorate to Drexel University of Philadelphia, Pa.

The agreement is funded by the Defense Advanced Research Projects Agency (DARPA) of Arlington, Va., and is intended to develop technologies in support of DARPA's Next Generation Internet (NGI) program.

Drexel will lead a consortium of researchers that includes the University of Pennsylvania, the City College of New York/CUNY, Princeton University, MCP Hahnemann University, Lucent Technologies and Bell Atlantic.

The "Pegasus Consortium" will conduct research on key enabling technologies to foster the realization of the next generation Internet. The consortium is named for the winged horse of Greek mythology that with a stroke of its hoof caused a fountain to spring forth from a mountain. Dr. Stuart Personick of Drexel will lead the consortium.

The government's NGI program, under which the Department of Defense will invest $50 million, is part of an inter-agency effort to advance networking technologies and new applications through deployment of national-scale testbeds that are vastly superior to today's Internet. First demonstrated by the military in the 1970s, Internet technology is the foundation of today's military and commercial network systems.

The NGI program will enable revolutionary capabilities of importance to both the Department of Defense and the nation as a whole. Envisioned to operate up to 1,000 times faster than today's Internet, it will support up to 100 times the number of users and applications.

Pegasus Consortium research will address what new network architectures, networking methods, and underlying networking technologies will be required to accommodate pervasive high-speed connectivity. Research results should flow into usage over the next decade.

Applications created by the researchers will run over a very-high-speed network that will be constructed linking Drexel, MCP Hahnemann, and the University of Pennsylvania. Connection into the emerging national high-speed networking research backbone will enable the applications to be expanded to national and international scale.

"The current grant will allow an optical networking team consisting of Lucent, Drexel, and Princeton to build and demonstrate a packet switch that can process five terabits (trillion bits) of information per second and can be scaled up to higher capacities," said Paul Sierak, program manager in the directorate's Information Grid Division. "With today's Internet traffic traveling at close to one terabit per second and growing rapidly, multi-terabit switches will be required for the next-generation Internet."

"The team will also create and demonstrate new types of next generation all-optical devices that will be required to efficiently implement very high-speed networks," Sierak said. **@**